



The Naval Postgraduate School
Graduate School of Engineering and Applied Science
Master of Science in Systems Engineering (MSSE) – Curriculum 580
Ship Systems Engineering Track

Building Ships to Meet the Demands of the 21st Century

Capable ships have been and will continue to be crucial enablers for meeting military, economic and political objectives. National priorities and international commitments increasingly require advanced technologies and design methods be used to construct naval ship “systems”. Once operating in an integrated battlegroup and joint environment, these modern ships will be part of a system of systems – a *network-centric warfighting system*. The new **Master of Science in Systems Engineering (Ship Systems Engineering)** will provide the technical graduate education needed to build, operate, and maintain effective, cost-efficient naval ships and ship systems.

Graduate Education for Maritime Supremacy

In the summer of 2006, the Naval Postgraduate School will offer a resident, nine-quarter Master of Science in Systems Engineering (MSSE) with tracks in *Ship Systems Engineering (SSE)*, *Combat Systems Engineering*, and *Network-Centric Systems Engineering*. The MSSE (SSE) will produce graduates able to:

- Apply systems engineering and architecting methods to the development of complex systems of systems, including naval ships.
- Lead and contribute to systems engineering activities associated with ship acquisition programs throughout the life cycle of the ship class.
- Understand the technical aspects of modern ship design and construction.
- Understand the principles that underlie ship hull, mechanical, and electrical systems.
- Understand the principles that underlie modern combat systems, including sensors, weapons, and C4ISR networks.
- Understand basic mathematical, scientific, and engineering principles that support the understanding, analysis, and assessment of future technology developments of any type in any area that may be relevant to future naval ships.
- Understand the risks, issues, and trade-offs of using current and projected ship and combat systems technologies.

A Balanced Technical Program

An inter-disciplinary graduate program drawn from across the Naval Postgraduate School, the MSSE (SSE) curriculum integrates a broad base of courses, seminars, and group and individual research activities. The basic course list (shown below for the initial offering) will be tailored to meet the students’ needs. Seminars on current SSE topics will be held on a quarterly basis. ABET accreditation is planned for 2008.

Summer 2006 (2006/4)

SE1001 Math I for Systems Engineering
SE1002 Math II for Systems Engineering
PH1001 Fundamentals of Physics I
PH1002 Fundamentals of Physics II

Fall 2006 (2007/1)

SE3100 Fundamentals of Systems Engineering
OS3180 Probability and Statistics for Systems Engineering
NW3230 Strategy and Policy
PH2654 Quantum Physics

Winter 2007 (2007/2)

SE3400 Fundamentals of Eng. Project Management
SE3030 Quantitative Methods in Systems Engineering
SE2017 Chemical Systems
SE2015 Material Systems

Spring 2007 (2007/3)

SE3302 System Suitability
OS3380 Combat System Simulation
SE2018 Biological Systems
SE2016 Battlespace Environments

Summer 2007 (2007/4)

OA4702 Cost Estimation
SE4003 Computer and Software Systems Engineering
SE3113 Conventional Weapons
SE3112 Sensor Functions

Fall 2007 (2008/1)

OS3401 Human Factors and Safety
TS3000 Shipboard Power Systems
SE4113 Unconventional Weapons
SE4112 Sensor Technologies

Winter 2008 (2008/2)

OS4680 Systems Analysis
OS4580 Reliability, Maintainability, and Logistics
TS3001 Naval Architecture
SE0810 Capstone Systems Engineering Project

Spring 2008 (2008/3)

TS4000 Combat Systems Integration
TS4001 Ship Design & Integration
SE0811 Systems Engineering Thesis
SE0810 Capstone Systems Engineering Project

Summer 2008 (2008/4)

OA4603 Test and Evaluation
SE0811 Systems Engineering Thesis
SE0810 Capstone Systems Engineering Project

Further Information

For enrollment information, see the NPS Website at <http://www.nps.edu/Admissions/index.html>.

For questions on the MSSE (SSE): Contact Dr. Cliff Whitcomb at 831-656-3834 or cawhitco@nps.edu.